

GoldStar

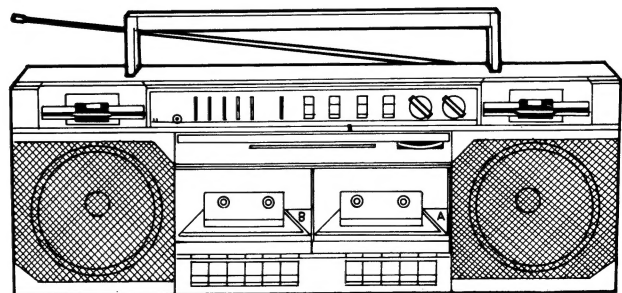
SERVICE MANUAL

STEREO DOUBLE CASSETTE RECORDER

CAUTION

BEFORE SERVICING THE CHASSIS, READ THE "SAFETY PRECAUTIONS", IN THIS MANUAL

MODEL: TWC-7083
(MW/SW/FM)



MODEL: TWC-7083




GoldStar

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SAFETY PRECAUTION

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by a  in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

SPECIFICATIONS

● MW RADIO

Frequency Range	.515—1630 KHz
Intermediate Frequency	.455 or 465 KHz (OPTION)
Usable Sensitivity	.58 dB (400 Hz, 30% Mod)
S/N Ratio	.36 dB (74 dB Input)
I.F. Rejection Ratio	.30 dB (At 20 dB S/N SENS)
10% T.H.D. Power Output	.1.8 W (DC), 1.6 W (AC)
T.H.D.	.5% (400 Hz 30% Mod.)
Audio Response (100 Hz — 3 KHz).	.0 ± 6 dB

● FM RADIO

Frequency Range	.87.35 — 108.25 MHz
Intermediate Frequency	10.7 ± 0.1 MHz
Usable Sensitivity	.20 dB (30 dB S/N)
S/N Ratio	.40 dB (60 dB Input)
I.F. Rejection Ratio	.60 dB (Maximum Sensitivity)
Automatic Frequency Control	.300 ~ 700 KHz (Input 60 dB)
10% T.H.D. Power Output	.1.8 W/1.6 W (Input 60 dB, DC/AC)
T.H.D.	.3%
Audio Response. (100 Hz ~ 8 KHz)	.0 ± 6 dB (100 Hz), 0 ± 7 dB (8 KHz)
Stereo Separation	.20 dB (60 dB Input At 1KHz)
Stereo T.H.D.	.5 % (75 KHz Dev.)

● SW RADIO

Frequency Range	.5.7 — 18.5 MHz
Intermediate Frequency	.455 or 465 KHz (OPTION)
Usable Sensitivity	.45 dB (SW Dummy Use)
S/N Ratio	.35 dB (60 dB Input)
Image Rejection Ratio	.3 dB (At Maximum Sensitivity)

● TAPE RECORDER

Tape Speed	.± 3 Cm/Sec (MTT-III)
Wow & Flutter	.0.35% (JIS-WRMS, MTT-III)
Distortion	.5% (PLAY), 10% (REC/PLAY)
Output	.1.8W/1.6W (DC/AC)
S/N Ratio	.36 dB (PLAY), 25 dB (REC/PLAY)
Erase Ratio	.40 dB (CS-26)
5EQ Frequency Response	.± 6dB (MTT-256)

● **GENERAL**

Circuit System	AC Bias/Magnet Erase Upper Heterodyne System 5 Band Graphic Equalizer
Speaker	Woofer: 40 ohm x 2EA (3.5 Inch) Tweeter: 40 ohm x 2EA (Piezo)
Power Source	DC: 9V ("D" Cell x 6) AC: 110/220V, 50/60 Hz (OPTION)
Antenna	FM/SW: Telescopic Rod Antenna MW: Ferrite Bar Antenna

DIAL CORD STRINGING

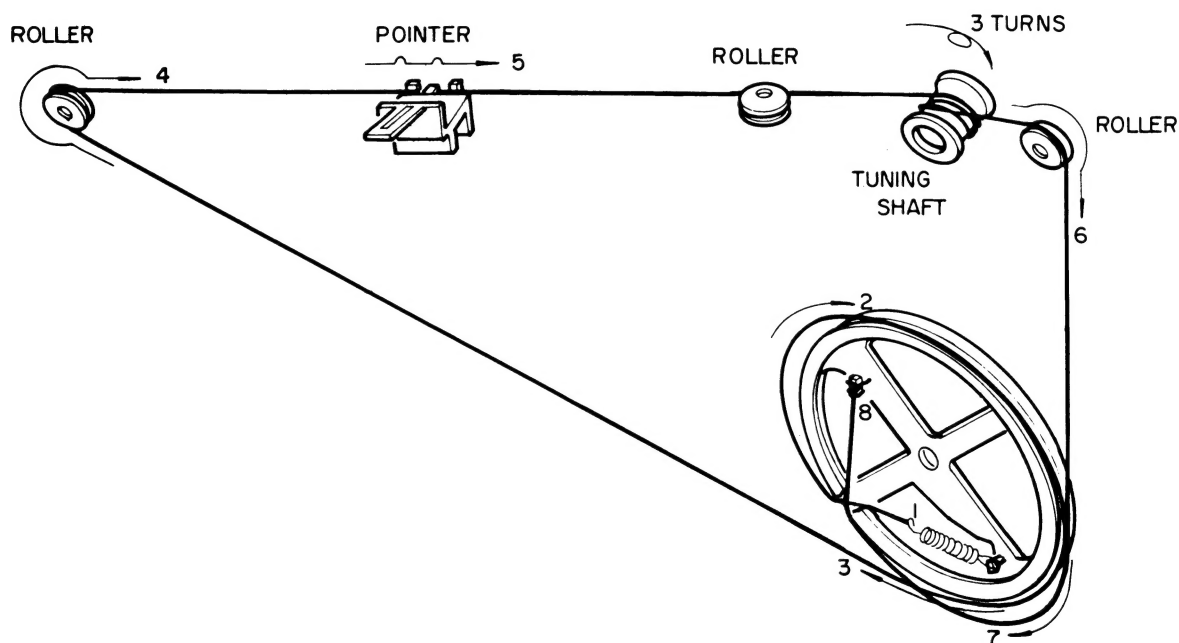


Figure 1.

Set the tuning capacitor to minimum frequency and string the cord following the numbers in figure1.

ADJUSTMENT

• EQUIPMENT NEEDED

1. AM Signal Generator
2. FM Signal Generator
3. AM/FM IF Genescope
4. FM Stereo Signal Generator
5. Oscilloscope
6. Output Meter (VTVM)
7. Frequency Counter
8. Nonmetallic Alignment Tools
9. Test Tape: MTT-141 (8KHz)

• IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band being aligned.
3. Turn volume control to minimum unless otherwise noted.
4. Connect low side of signal source and output indicator to chassis ground unless otherwise specified.
5. Keep the signal input as low as possible to avoid AGC and AFC action.
6. Standard modulation is 400Hz at 30% for AM. (400Hz at 22.5kHz deviation for FM)

• TEST AND ADJUSTMENT POINT

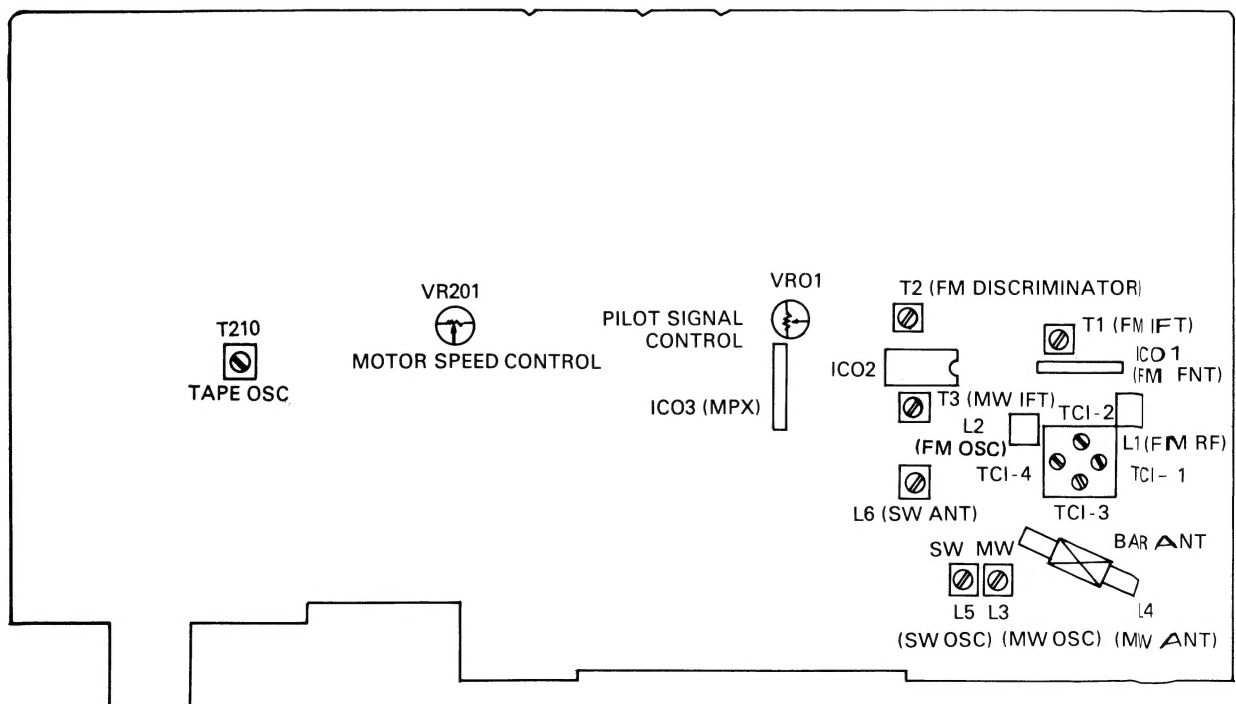


Figure 2. RF P.C. Board

• **MW SECTION**

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
IF	Connect input of IF Genescope to No. 9 Of ICO2 , output to MW Ant coil (L4) through the dummy. (Figure 3)	1	455 KHz (400 Hz Mod.)	Tuning Gang fully closed	T3 (MW IFT)) Adjust for maximum output
		2			Repeat until no further improvement can be made.
Band	AM Signal Generator with loop antenna. Output Meter (VTVM) across 4 ohm load. (Figure 4)	3	520 KHz (400Hz Mod.)	Tuning Gang fully closed	L3 (MW OSC. Coil) Adjust for maximum output.
		4	1630 kHz (400 Hz Mod.)	Tuning Gang fully open	TC1-3 (MW OSC, Trimmer). Adjust for maximum output.
		5			Repeat steps 3 & 4
Tracking	AM Signal Generator with loop antenna. Output Meter (VTVM) across 4 ohm load (Figure 4)	6	600 kHz (400 Hz Mod.)	Tune to signal	L4 (MW Ant. Coil). Adjust coil on ferrite core for maximum.
		7	1400 kHz (400 Hz Mod.)	Tune to signal	TC1-4 (MW Ant. Trimmer) Adjust for maximum output.
		8			Repeat steps 6 & 7 several times.

• **SW SECTION**

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
Band	AM Signal Generator to antenna terminals through SW dummy matching network. Output Meter (VTVM) across 4 ohm load. (Figure 5)	1	5.7 MHz (400 Hz Mod.)	Tuning Gang fully closed	L5 (SW OSC. Coil). Adjust for maximum output.
		2	18.5 MHz (400 Hz Mod.)	Tuning Gang fully open	TC3 (SW OSC, Trimmer) . Adjust for maximum output.
		3			Repeat steps 1 & 2
Tracking	AM Signal Generator to antenna terminals through SW dummy matching network. Output Meter (VTVM) across 4 ohm load. (Figure 5)	4	6.5 MHz	Turn to signal	L6 (SW Ant. Coil). Adjust for maximum output.
		5			Repeat steps 4 & 5 several times.

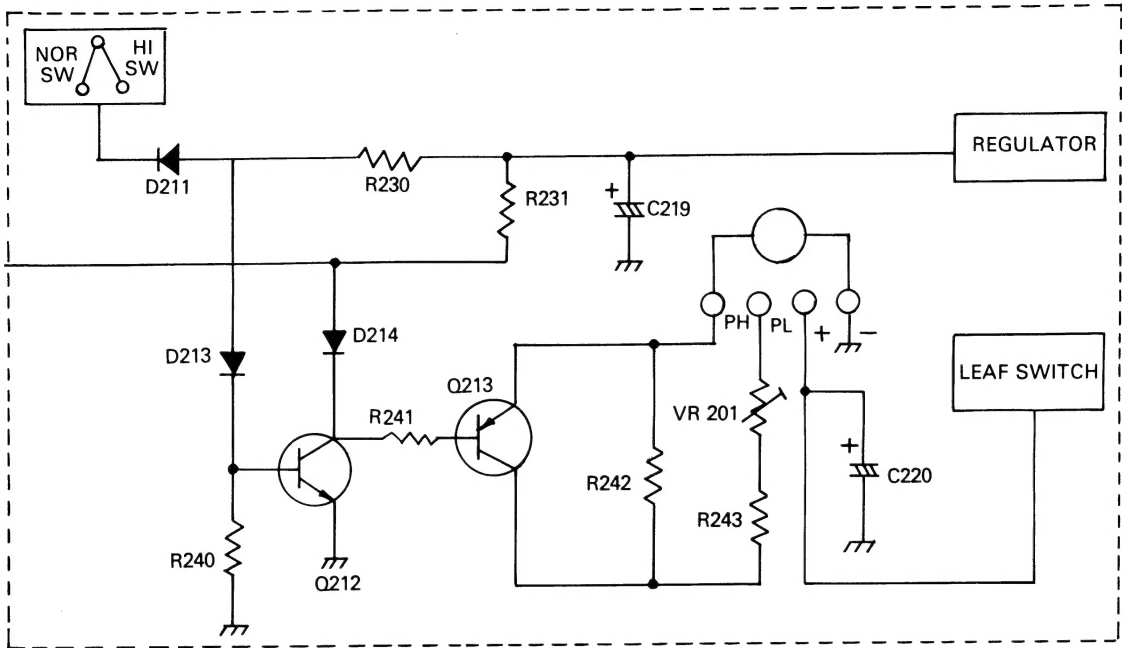
• **FM SECTION**

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
IF	Connect input of IF Genescope to No. 8 of ICO2, output to the body of ICI through the dummy. (Figure 6)	1	10.7 MHz	Tuning Gang fully closed	T1, T2 (FM IFT). Adjust for maximum symmetrical response (10.7 MHz at the center point)
		2			Repeat step 1
Band	FM Signal Generator to antenna terminals through 75 ohm antenna matching network. Output Meter (VTVM) across 4 ohm load. (Figure 7)	3	87.35 MHz (400Hz Mod.)	Tuning Gang fully closed	L2 (FM OSC, Coil). Adjust for maximum output
		4	108.25 MHz (400 Hz Mod.)	Tuning Gang fully open	TCI-2 (FM OSC. Trimmer) Adjust for maximum output
		5			Repeat steps 3 & 4 several times.
Tracking	FM Signal Generator to antenna terminals through 75 ohm antenna matching network. Output Meter (VTVM) across 4 ohm load. (Figure 7)	6	90 MHz (400 Hz Mod.)	Tune to signal	L1 (FM Ant. Coil). Adjust for maximum output
		7	106 MHz (400 Hz Mod.)	Tune to signal	TCI-1 (FM Ant Trimmer). Adjust for maximum output.
		8			Repeat steps 6 & 7 to obtain suitable sensitivity at 90 MHz and 106 MHz.

• **FM MPX ADJUSTMENT**

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
38 kHz \pm 0.1 kHz (ROI)	FM Stereo Generator composite out connected to Ext. Mod of FM Signal Generator. FM Signal Generator to antenna terminals matching 75 ohm antenna matching network. Frequency Counter across TP (Pin No. 6 of ICO3) (Figure 8)	1			First make sure FM section properly aligned.
		2	98 MHz (1 mV output)	98 MHz	Adjust VR 704 for Frequency Counter indicates 38 kHz \pm 0.1 KHz.

MOTOR SPEED ADJUSTMENT

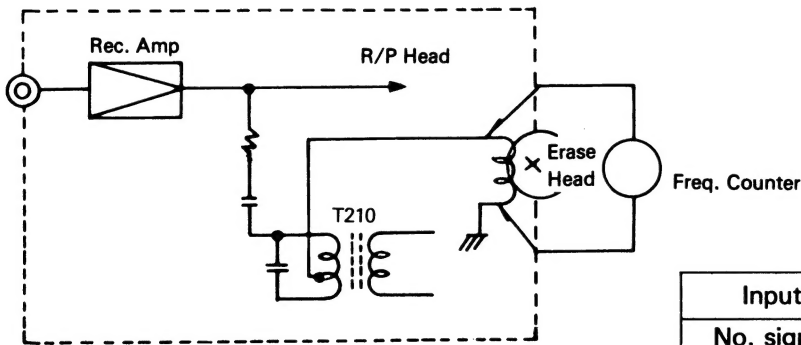


NORMAL-SPEED ADJUSTMENT

Dubbing switch: Normal-speed

Input	Adjust for	Adjustment	Output
GTT-111	3000Hz \pm 30Hz	VR201	Speaker out

• BIAS FREQUENCY ADJUSTMENT



Input	Adjust for	Adjustment
No. signal	60 kHz	T210

NOTE. RIF S/W: "2" position.

TEST EQUIPMENT CONNECTIONS

Figure 3 MW IF

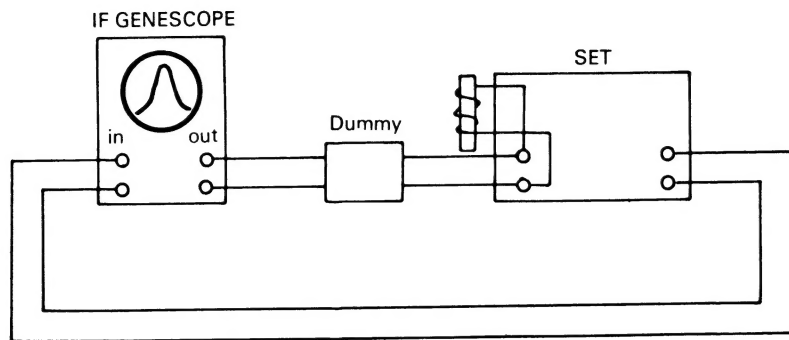


Figure 4. MW Band/Tracking

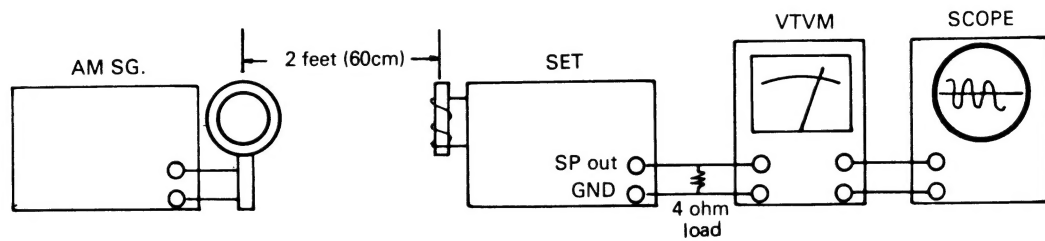


Figure 5. SW Band/Tracking

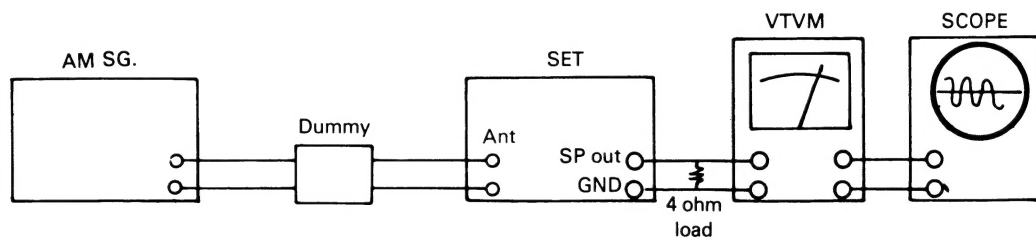


Figure 6. FM IF

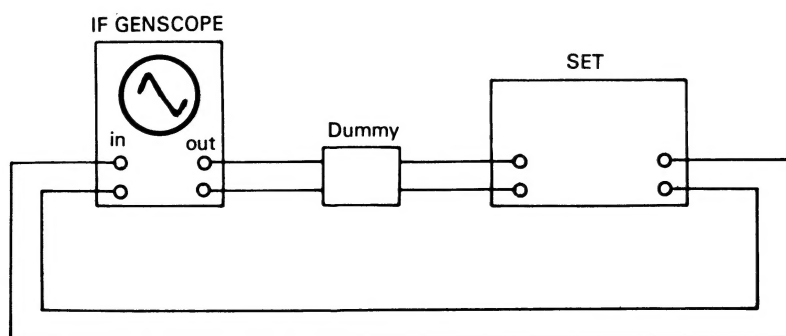


Figure 7. FM Band/Tracking

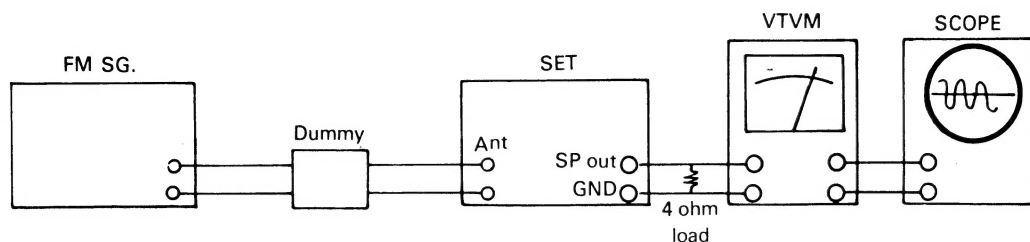
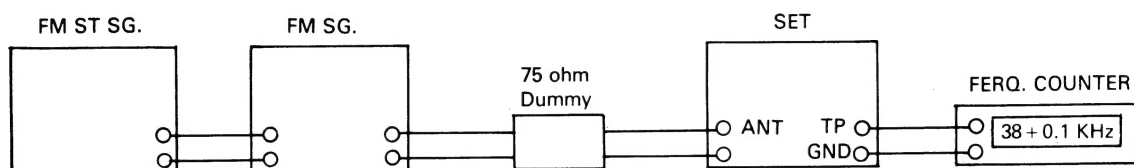


Figure 8. 38 ± 0.1 KHz Pilot



STANDARD MAINTENANCE

Tape Head and Capstan Cleaning

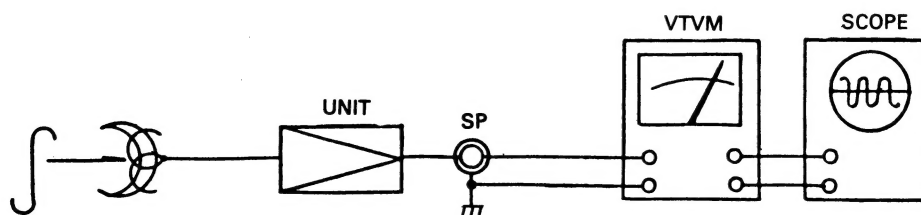
Whenever a unit is brought in for service or repair, clean the tape heads, capstan drive shaft and other tape handling surfaces to ensure proper tape handling and optimum frequency response. Use a cotton swab dipped in head cleaner or denatured alcohol to clean all tape handling surfaces. Wipe dry.

Tape Head Demagnetization

Do not use magnetized tools near the tape heads, since they can magnetize the head. After long period of the heads will retain a small amount of residual magnetism. A magnetized head will result in loss of high frequency response and increased noise, use a standard tape head demagnetizer and follow the instructions supplied with it to demagnetize the heads.

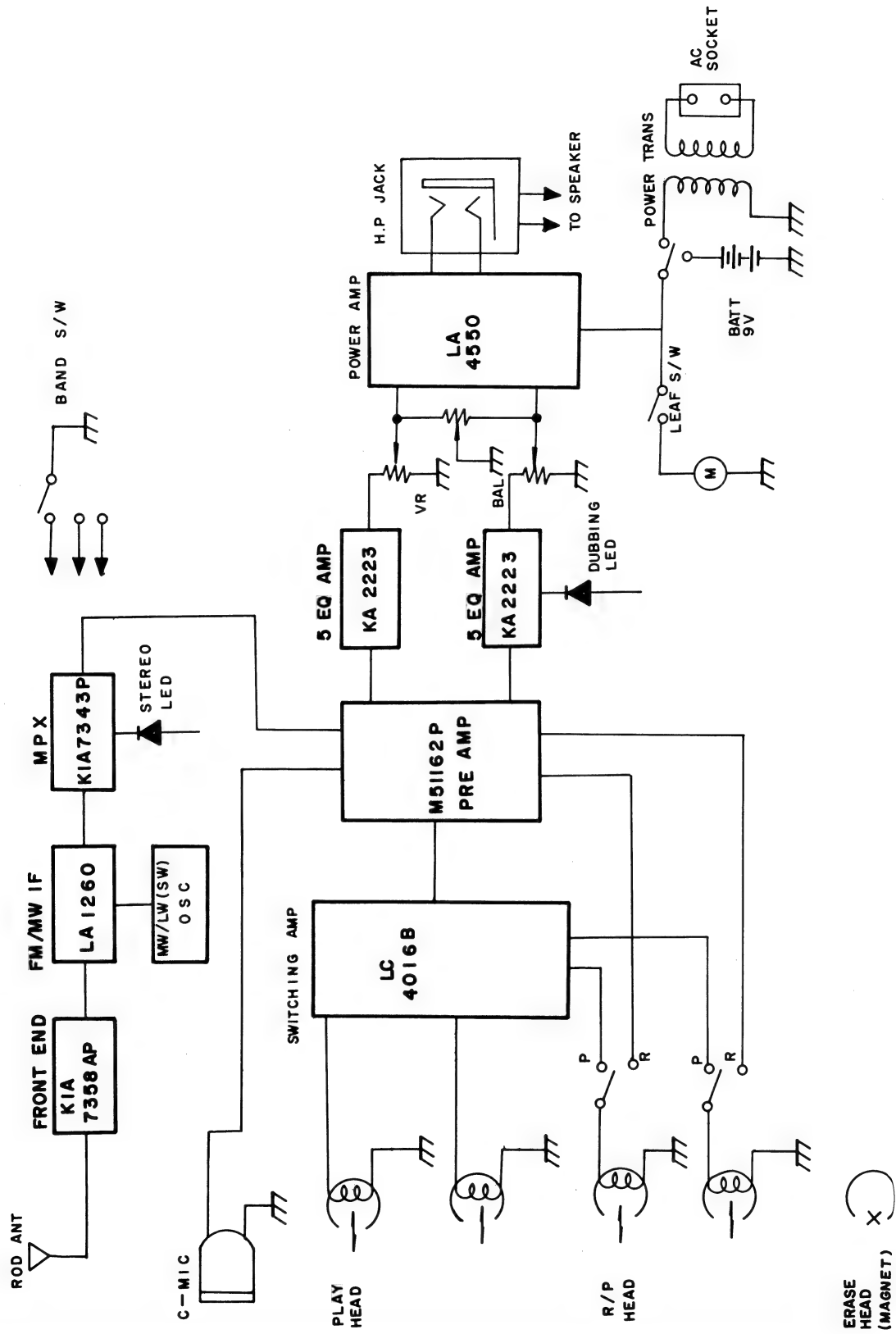
Azimuth Adjustment

1. Azimuth adjustment is normally required when the head is replaced, or for cases of cross-talk and poor high frequency response. A test tape is required for such adjustment.
2. Connect a scope or VTVM to the right channel EXT. SP jack. Insert a test tape into the unit (use a test tape such as TEAC MTT-141). Adjust the azimuth adjustment screw for maximum output onto the right channel. Use glyptal or other non-hardening cement to lock the azimuth adjustment screw.



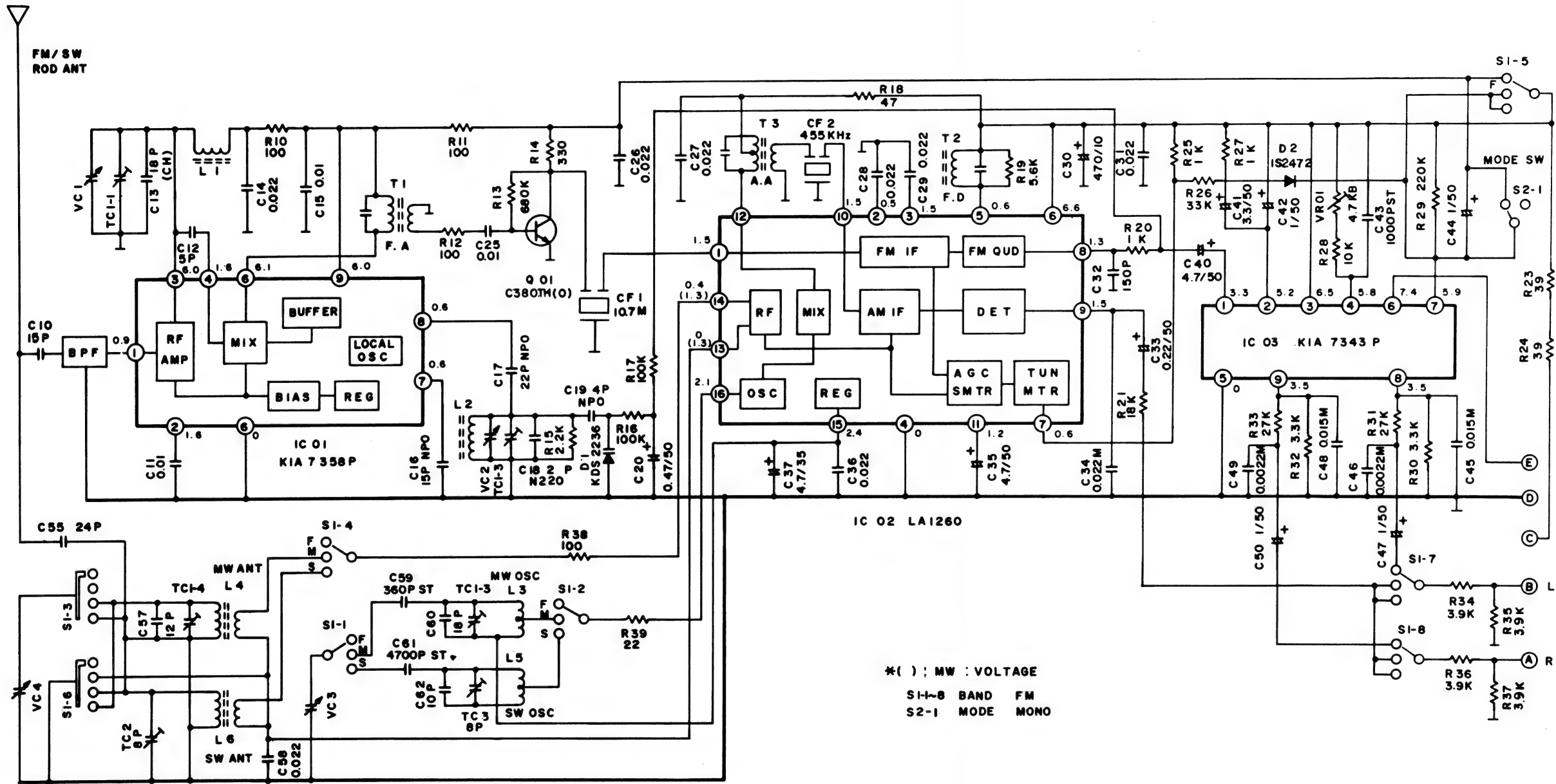
(Left channel is the same as right)

BLOCK DIAGRAM



SCHEMATIC DIAGRAM

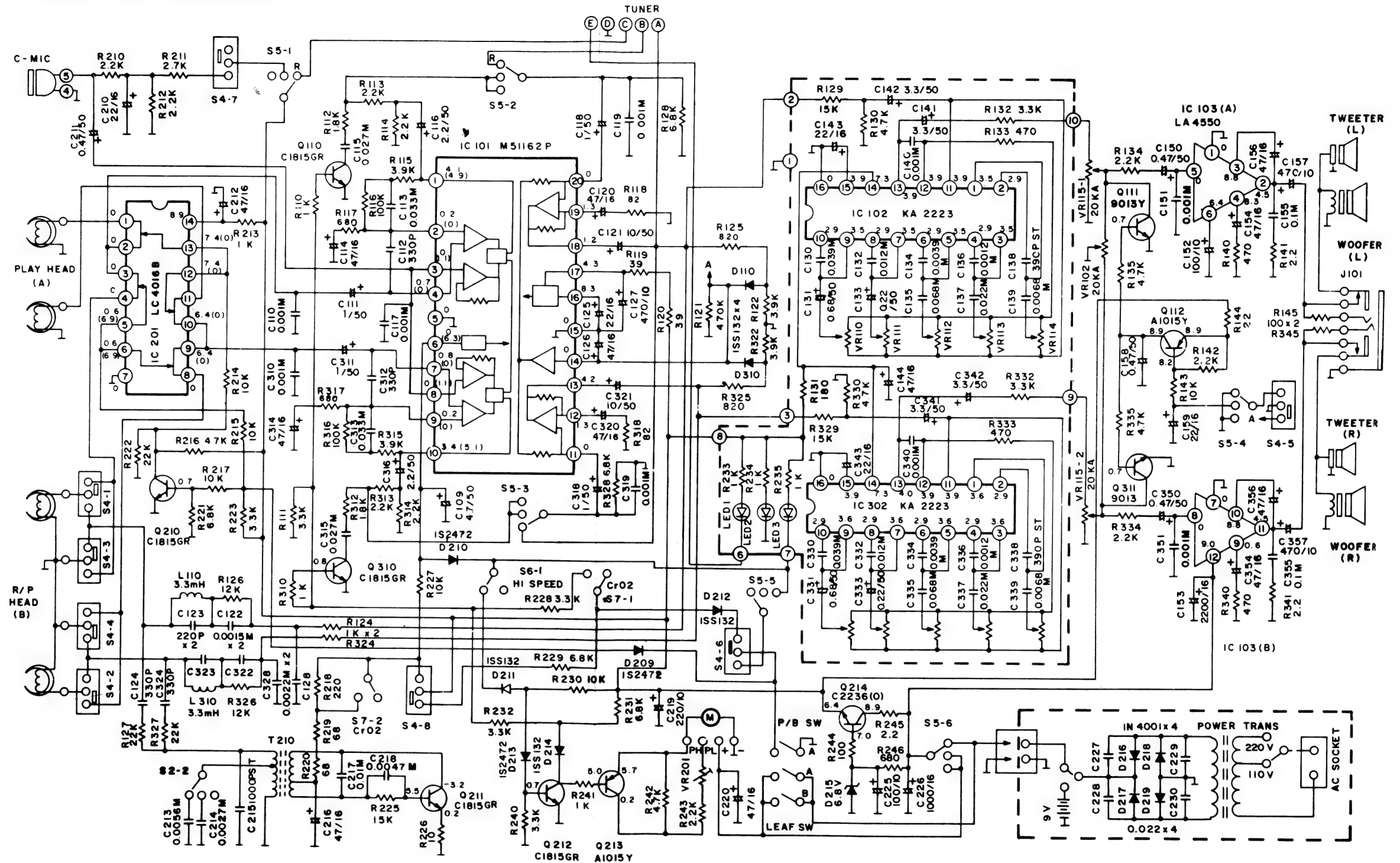
• MODEL: TWC-7083 (RF)



*() : MW : VOLTAGE
SI-8 BAND FM
S2-1 MODE MONO

NOTE
1 ALL RESISTOR VALUES ARE IN OHMS (K=100)
2 ALL CAPACITOR VALUES ARE IN MICROFARAD (P=100P)
3 THIS SCHEMATIC DIAGRAM MAY BE CHANGED FOR IMPROVEMENT OF PERFORMANCE WITHOUT NOTICE.

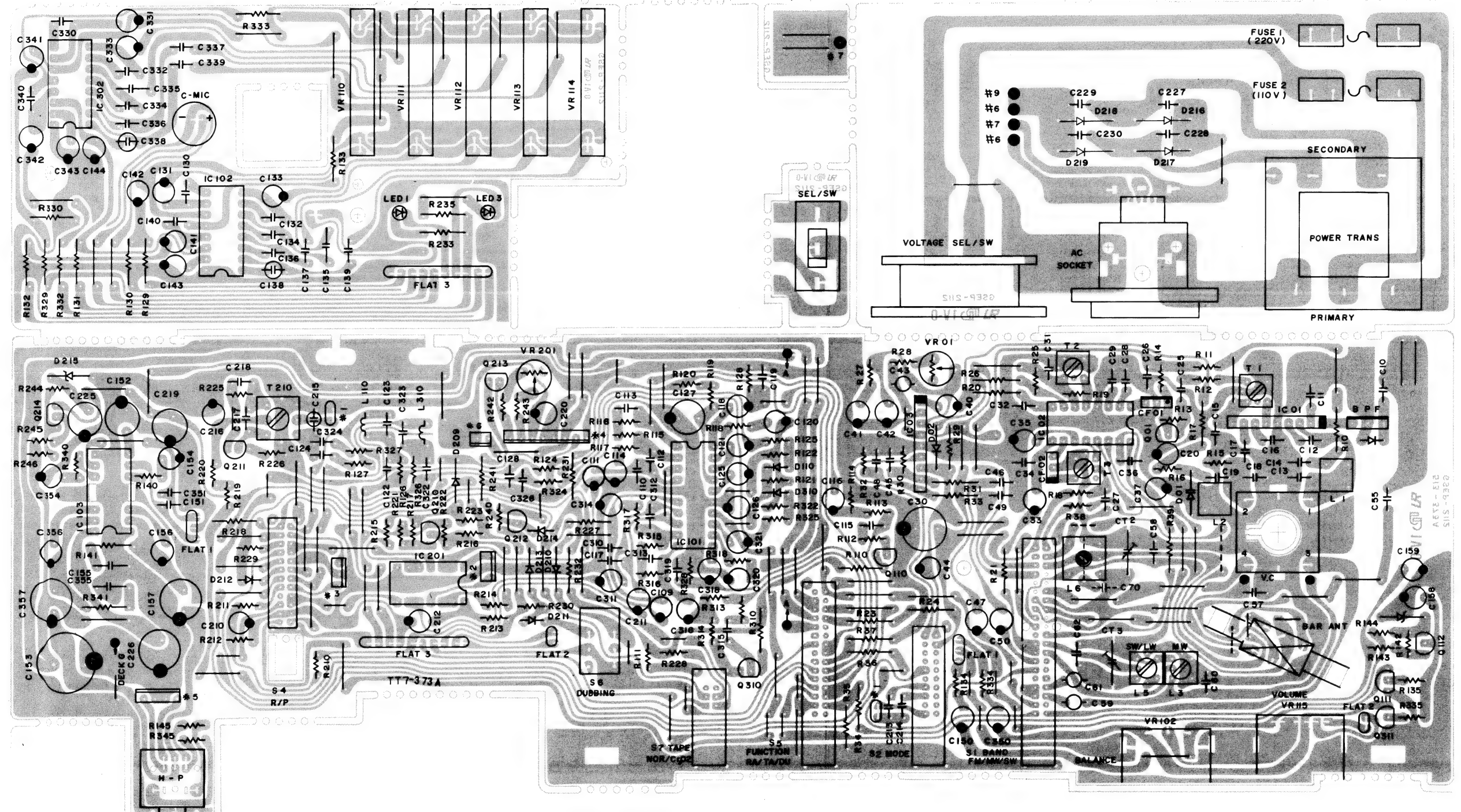
• MODEL: TWC-7083 (AUDIO)



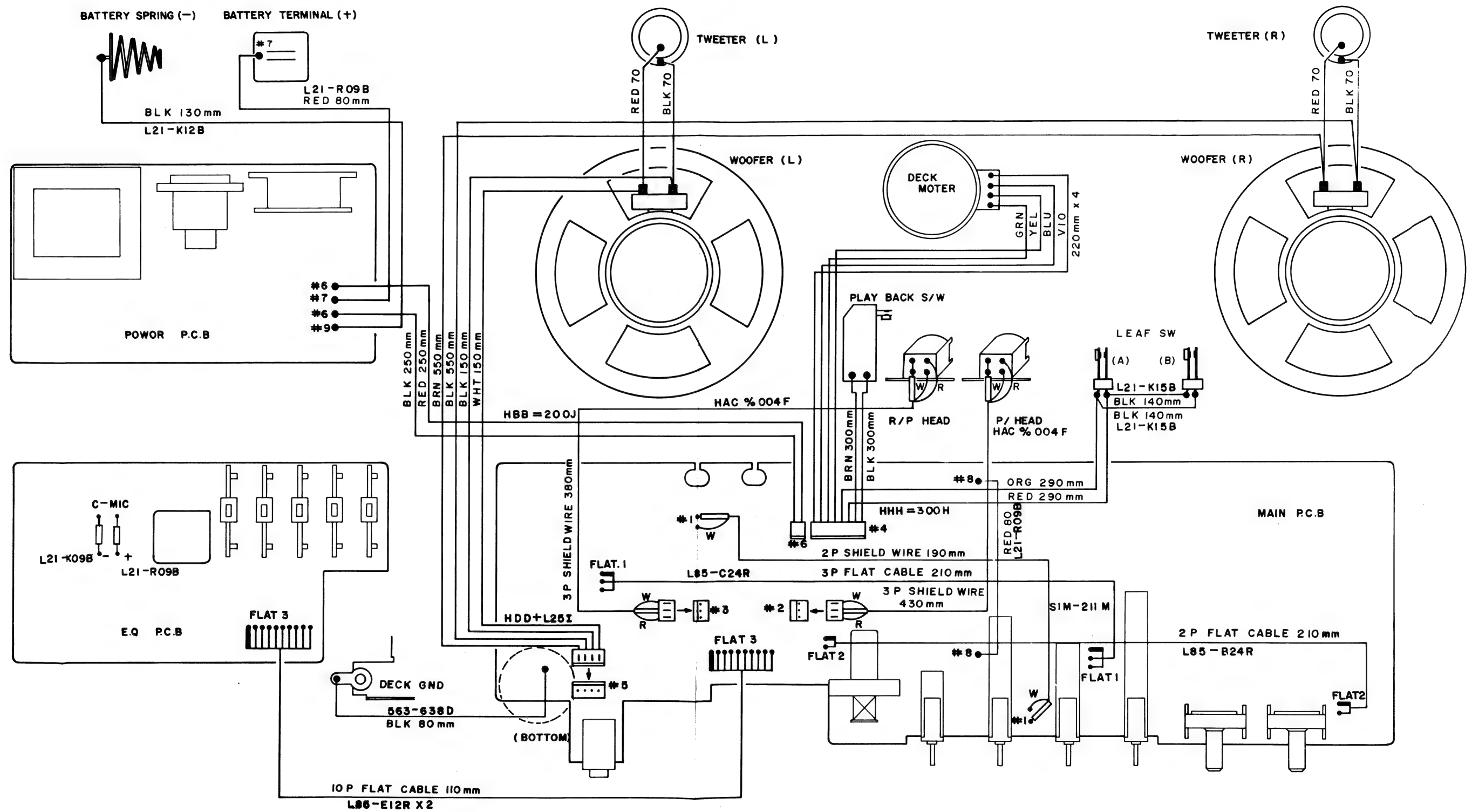
NOTE

- 1 ALL RESISTOR VALUES ARE IN OHM (K=100)
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- 3 THIS SCHEMATIC DIAGRAM MAY BE CHANGED FOR IMPROVEMENT OF PERFORMANCE WITHOUT NOTICE

PCB LAYOUT

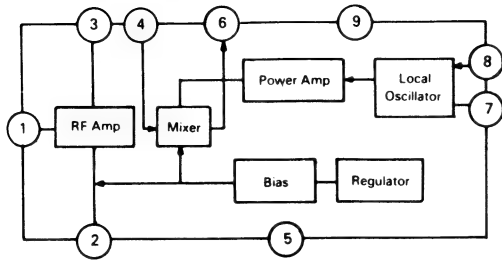


WIRING DIAGRAM

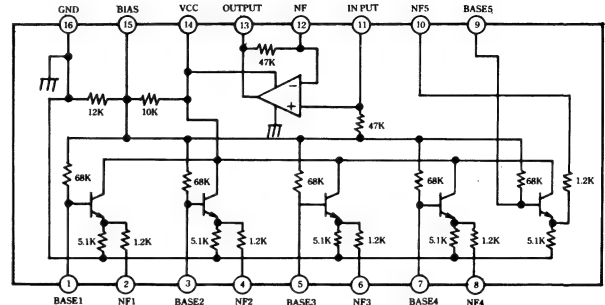


IC INTERNAL DIAGRAM

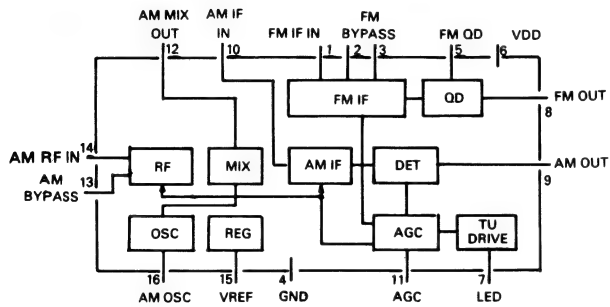
IC01 KIA7358P-FM FNT



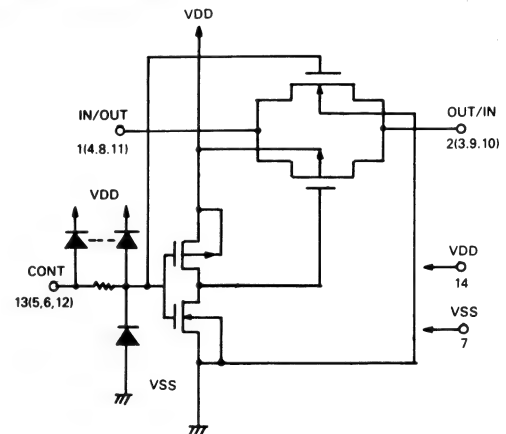
IC102, 302 KA2223-EQ AMP



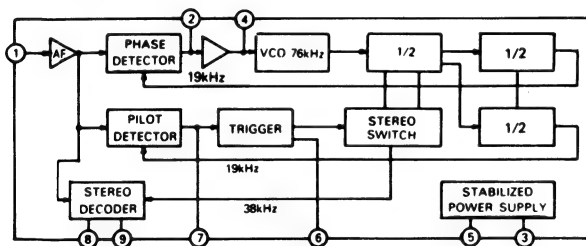
IC02 LA1260



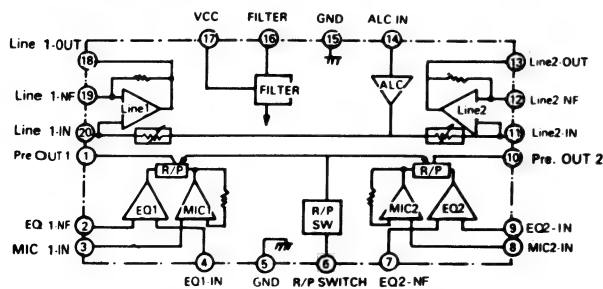
IC201 LC4016B



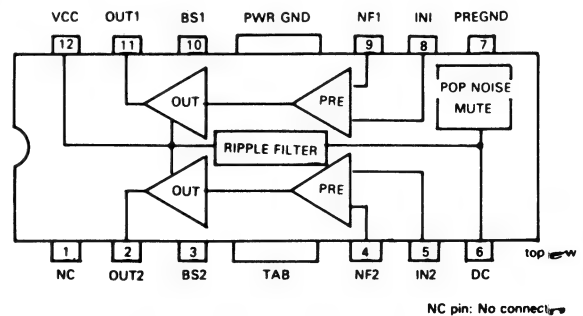
IC03 KIA 7343P-FM MPX



IC101 M51162P

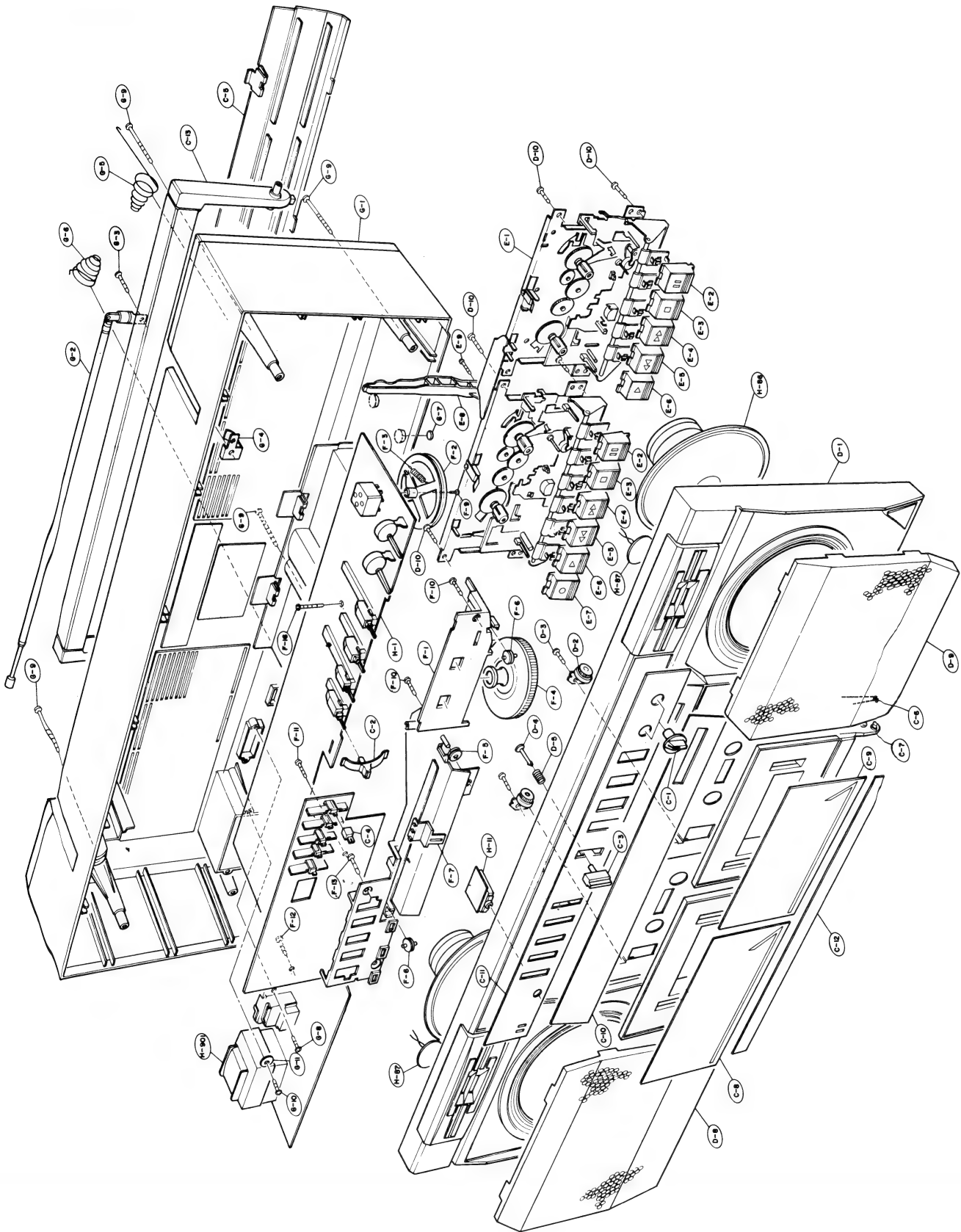


IC103 LA4550

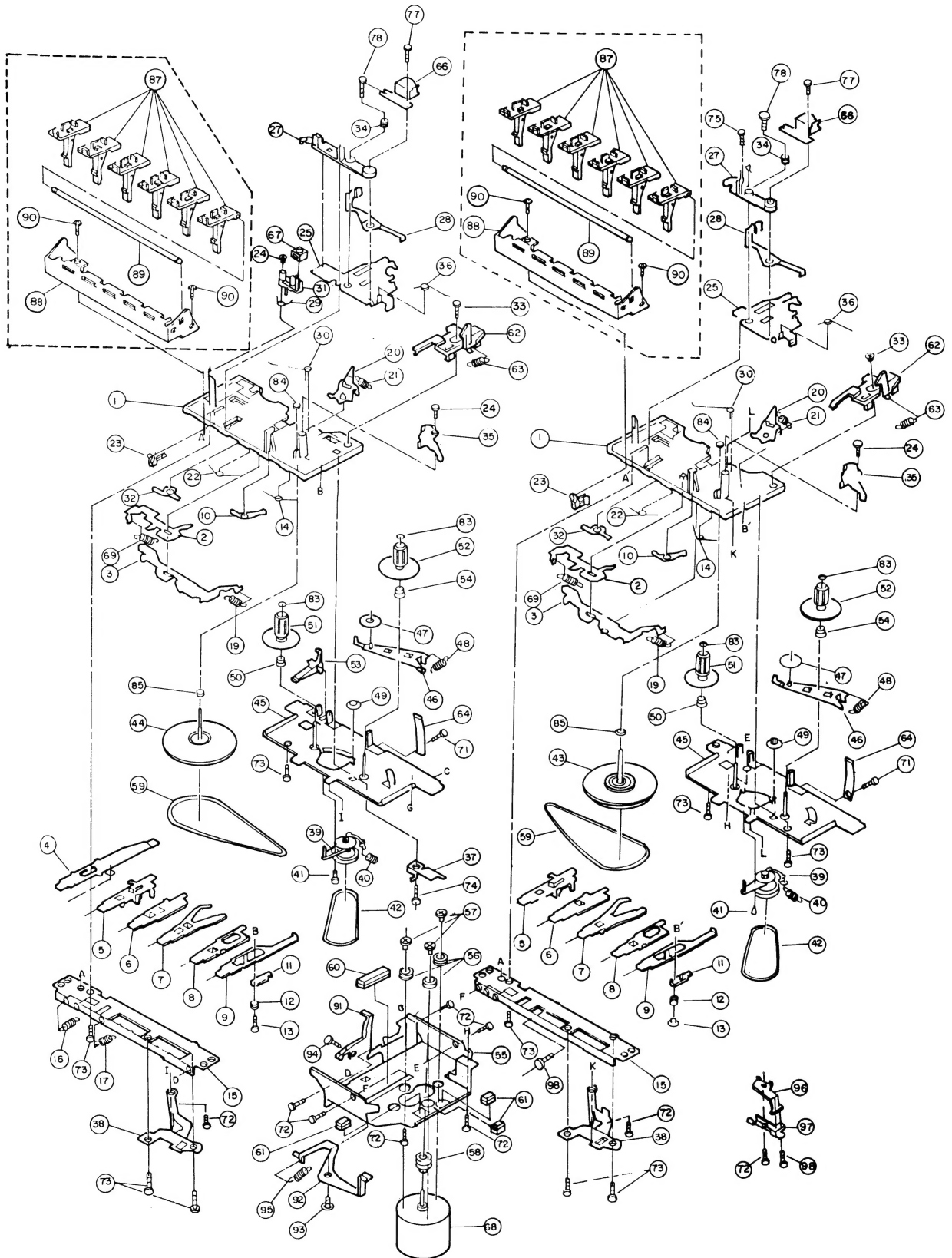


EXPLODED VIEW

• CABINET



• DECK MECHANISM



NOTE: Excluded parts in the parts list are not available as replacement parts.

REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a have special characteristics important to safety. Before replacing any of these components, read carefully the safety precaution of this service manual, don't degrade the safety of the receiver through improper servicing.

NOTE: N.S.P. (Not Service Part)

These parts are not available as repair parts because they are too costly or are not practical to replace or never expected to fail the life expectancy of the unit.

• ELECTRICAL

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
INTEGRATED CIRCUITS				D310	651T031A	Switch, ISS132	
IC01	668-108D	KIA7358P (FM FNT)		D311	651T031A	Switch, ISS132	
IC02	668-192B	LA1260 (FM/AM IF)		D312	651T031A	Switch, ISS132	
IC03	668-159A	KIA7343P (MPX)		D314	651T031A	Switch, ISS132	
IC101	668-660A	M51162P (EQ+Line)		LED1	653-625A	LED, KLR208E RD	
IC102	668-655D	KA2223 (EQ Amp)		LED2	653-625B	LED, KLG208E GN	
IC103	668-668A	LA4550 (Power Amp)		COILS AND TRANSFORMERS			
IC201	668-662C	LC4016B		L1	635-608C	Coil, FM RF	
IC302	668-655D	KA2223 (EQ Amp)		L2	635-020B	Coil, FM OSC	
TRANSISTORS				L3	634-037N	Coil, MW OSC	
Q1	665-820B	KTC380TM-O		L4	632-211E	Coil, MW ANT	
Q110	665-812C	KTC1815-GR		L5	634-020H	Coil, SW OSC	
Q111	665-703B	KTC9013A-H		L6	634-609A	Coil, SW ANT	
Q112	665-813B	KTA1015-Y		L110	637-005B	Coil, Peaking 33mH	
Q210	665-812C	KTC1815-GR		L310	637-005B	Coil, Peaking 33mH	
Q211	665-812C	KTC1815-GR		T1	644-018F	Trans, FM IF	
Q212	665-812C	KTC1815-GR		T2	647-011F	Discriminator	
Q213	665-813B	KTA1015-Y		T3	644-039M	Trans, MW IF	
Q214	665-881C	KTC2236AY		T210	634-036C	Coil, Tape OSC	
Q310	665-812C	KTC1815-GR		SWITCHES AND JACK			
Q311	664-703B	KTC9013A-H		S1	556-620F	SLY383-S, H=12.5	
DIODES				S2	556-620A	SLY343-S, H=12.5	
D1	654-418A	AFC, IS2236		S4	552-606G	CL208J-S	
D2	652T605B	Switch, IS2472		S5	556-620B	SLY363-S, H=12.5	
D110	651T031A	Switch, ISS132		S6	554-631A	SUF12-S, H=12.5	
Q209	652T605B	Switch, IS2472		S7	556-620C	SLY322V-S, H=12.5	
Q210	652T605B	Switch, IS2472		J101	571-103A	D=3.5 HSJ1064	
D213	665-813B	Switch, IS2472		VOLUMES			
D215	654-723C	Zener, DZ 6.8 B, M		VR102	611-648P	VR, K161A00-20KW	
D216	652-005A	Rect, IN4001		VR110	612-619E	VR, S152GGA-100KB	
D217	652-005A	Rect IN4001		VR111	612-619E	VR, S152GGA-100KB	
D218	652-005A	Rect IN4001		VR112	612-619E	VR, S152GGA-100KB	
D219	652-005A	Rect IN4001					

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
VR113	612-619E	VR, S152GGA-100KB		CF1	616-008A	Filter, SFE 10.7MS2	
VR114	612-619E	VR, S152GGA-100KB		CF2	616-003E	Filter, SFU 405B	
VR115	611-647X	VR, K162JOO-20KA		⚠	622-012B	Varicon Poly	
MISCELLANEOUS				BPF1	616-011G	Filter, BP-BPMB8	
				⚠	542-035B	Condenser Mic	
				⚠	641-724C	Trans, Power	
TC2, 3	623N023B	Trimmer		⚠	577-005C	AC Socket	

• CABINET

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
A-12 !	681-035C	Power Cord		E-15	MBC0726L	Screw MBC+1.7x5	
C-1	273-029F	KNOB Control		E-16	513-100A	PWB LEAF Switch	
C-2	273-017B	KNOB Lever S/W		F	311-083A	Chassis Assy'	
C-3	273-783A	KNOB Push		F-1	313-083A	Chassis	
C-4	273-065B	KNOB EQ V/R		F-2	431-052A	Pulley-Dial	
C-5	221-083A	Cover BAT		F-3	442-004E	Spring	
C-6	442-750A	Spring-Door		F-4	271-028D	KNOB Tuning	
C-7	226-783A	Door CST		F-5	434-038B	Roller	
C-8	236-783A	Window Door (L)		F-6	434-018A	Roller	
C-9	236-783B	Window Door (R)		F-7	361-083A	Pointer	
C-10	236-784A	Window Scale		F-8	886-0002	Cord Dial 0.47 (0.3LT)	
C-11	236-785A	Window Function		F-9	MPC1530J	Screw, MPC+2.6x6	
C-12	236-786A	Window Decoration		F-10	353-025G	Screw, Special 3x10	
C-13	261-783A	Handle Assembly		F-11	353-025S	Screw, Special 3x21	
D-1	217-082A	Case Front Assy'		F-12	353-025G	Screw, Special 3x10	
D-2	444-111A	Damper Assy'		F-13	353-025F	Screw, Special 3x8	
D-2-1	441-112A	Damper Gear		F-14	341-013A	Bushing MIC	
D-2-2	324-112A	Holder Gear		F-15	324-995H	Holder LED	
D-3	353-025G	Screw, Special 3x10		F-16	353-025F	Screw, Special 3x8	
D-4	324-426A	Holder, Push KNOB		G	215-084A	Case Assy' Rear	
D-5	442-634G	Spring KNOB		G-1	217-084A	Case Rear	
D-10	353-025G	Screw, Special 3x10		G-2	532-205B	Rod Antenna	
E	412-017A	Deck Ass'y		G-3	MAC1839L	Screw, MAC+3x10	
E-1	419-011M	Deck Mech'		G-4	563-083A	Terminal ANT	
		TN21SW-1199		G-5	442-714B	Spring, Battery (A)	
E-2	275-055G	Button-Deck, Pause		G-6	442N282I	Spring, Battery (B)	
E-3	275-055H	Button-Deck, Stop		G-7	447-059A	Cushion Spring	
E-4	275-055I	Button-Deck, F.F		G-8	353-025G	Screw, Special 3x10	
E-5	275-055J	Button-Deck, REW		G-9	353-041B	Screw, Special	
E-6	275-055K	Button-Deck, Play		G-10	353-025G	Screw, Special 3x10	
E-7	275-055L	Button-Deck, REC		G-11	354-601F	Washer, Metal	
E-8	333-083A	Lever Recording		H	511-373A	PCB Ass'y	
E-9	MPC0930J	Screw					

• DECK MECHANISM

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
20	99T-1094	Auto Lever		67	99T-1098	E. Head	
21	99T-0919	Auto Lever Spring		68	99T-1102	Motor	
23	99T-1103	LEAF Switch		71	99T-0960	C. Tapping Screw M2x3	
34	99T-0928	Azimuth Spring		72	99T-0961	C. Tapping Screw M2x4	
35	99T-0929	Pinch Roller Arm Ass'y		73	99T-1045	P Tapping Bind Screw M2x5	
42	99T-0934	RF Belt		74	99T-1123	P Tapping Screw M2x6	
53	99T-1119	Record Safety Lever		75	99T-1057	Screw M2x6	
59	99T-0980	Main Belt		93	99T-0972	P.K. Coller Screw (A)	
60	99T-0979	Anti Vibraion Felt Mat		94	99T-0973	P.K. Coller Screw (B)	
61	99T-1131	Anti Vibration Felt Mat		95	99T-0974	P. Kick Lever Spring	
62	99T-1026	Eject Slide Lever		97	99T-1134	Leaf Switch	
64	99T-0954	Pack Spring				MSW-1412TNBK	
65	99T-1132	P. Head		98	99T-1135	Screw (2.0x4)	
66	99T-1143	R.P. Head					